

Case-Study Report

Due: Wednesday, April 24, 2019, 11:59 p.m.

Total Points: 100

During this semester, we have covered many machine learning algorithms. These algorithms include, but are not limited to: Mixtures of Gaussians, Hidden Markov Models, Linear Regression, and Multilayer Perceptrons. Much of what we have done has focused on the theory and mathematics behind these approaches, but we really have not discussed how exactly these methods are applied to real-world problems.

This assignment is designed to help you better understand how machine learning algorithms have been or are currently being used to address different problems. More specifically, this assignment requires you to do the following:

1. Select two different algorithms that we have discussed in class. For example, neural networks and hidden Markov Models.
2. Perform a literature search to determine how these algorithms have been applied to different research problems. For example, in this case, you could determine how neural networks are being used to perform object recognition in computer vision. Additionally, you could determine how hidden Markov Models are being used for speech recognition. **Note that you only need to find one application for each approach, so one paper that shows how NNs are used, and a different paper that shows how HMMs have been used. Also note that the paper must come from a reputable peer-reviewed source (i.e. IEEE, ICASSP, NIPS, AAAI, ICML, etc.) and it must be published work. You can even use your own research, if it satisfies these criterion.**
3. Once you select the two papers, you need to read them and summarize the papers in a report. **The report should be between 8-10 pages long, where half of it discusses one paper/algorithm, and the other half summarizes the other paper/algorithm.** Be sure to adequately introduce the problem that the papers address, describe how their approach differs from others, describe their methodology, and summarize their results and conclusions.
4. Report formatting: Use the provided conference-style templates. Microsoft Word and LaTeX templates for this document can be found on Canvas.

This is an individual assignment so you must work on your own and must submit your own assignment. Academic honesty is taken seriously; for detailed information see Indiana University Code of Student Rights, Responsibilities, and Conduct.

Your assignment must be submitted as a single pdf document on Canvas. The report must be typed. This assignment must be submitted on time to receive credit. No late work will be accepted, unless you have a prior arrangement with the instructor.